

Quality of life amongst young adults with stroke living in Kenya

Muli, G. and Rhoda, A.

Abstract

Background: The world has been experiencing an increase of stroke among young adults. Occurrence of stroke in young adults dramatically affects the quality of life of the individuals. **Objectives:** To investigate the quality of life amongst young adults who experienced a stroke living in Kenya.

Methods: A cross-sectional study was carried out on a conveniently selected sample of 161 young adults with stroke drawn from three tertiary hospitals in Kenya. The Short-Form 36-item second version (SF-36v2) was used to collect the data. Descriptive and association statistical analysis using Mann-Whitney U, and Kruskal Wallis tests were calculated on the data using SPSS.

Results: In relation to a total score of 100, when expressed as a percentage the mean quality of life scores, ranged from 30% to 48% for each of the SF-36v2 domains. The results showed that males scored higher than females in all the domains except in physical functioning and that the scores decline with advance in age in most domains.

Conclusion: The quality of life scores for this group were low meaning that that they were experiencing more challenges with physical functioning, psychological and emotional functioning and fulfilling previous roles.

Introduction

The developed world has been experiencing an increasing incidence of stroke among young adults¹. With regards to sub-Saharan African countries the mean age of stroke is also known to be much lower at < 60 years² when compared to developed countries where the mean age varies between 70 to 75 years³. Stroke in young adults is a concern as younger people are still part of the economically active part of the population and the impact of stroke is therefore greater on these individuals and their families⁴.

The majority of stroke patients report a decline in health-related quality of life post-stroke^{5, 6}. The domains of an individual's life that is encompassed in quality of life includes, limitations in physical activities, problems with work or other daily activities, limitations resulting from pain; energy and tiredness; the effect of physical and emotional health on normal social activities; happiness, nervousness and depression, and

personal opinion of one's health compared with that of one's peers as well as the expectation of changes in health⁷.

The occurrence of stroke dramatically affects the lifestyles of the individuals in the various life domains mentioned above. Post stroke more than 50% of the individuals often required assistance with at least one activity of daily living^{8, 9}. Other activities that patients with stroke are often not able to perform include washing clothes, shopping and house work^{10, 11} as well as travelling by public transport¹¹. Domains that persons with stroke are often not able to participate in include leisure activities, employment and education¹².

Stroke in young adults has also been shown to take its toll on employment, where a large reduction of employment has been found to be associated with unfavourable functional state, fatigue, cognitive deficiencies, social impairments and depression¹³. The impact of stroke on the individual is therefore multidimensional. It affects them physically, psychologically, socially, mentally and economically, thereby affecting their quality of life. This sometimes leads to a serious sequel of events in their lives, and also the lives of family and community members¹⁴. A number of studies have been conducted in sub-Saharan African countries that have looked at the quality of life of people using different populations or groups^{15, 16}. No published literature is however available about the quality of life of young stroke patients living in a sub-Saharan African country. This information is important as a younger group of the population experiences a stroke in this region and services should be implemented which could decrease the impact of the stroke on the quality of life specifically related to young patients with stroke. This study therefore aimed to investigate the quality of life of young stroke adults in Kenya.

Methods

Study design and Sampling

A descriptive, cross sectional design was used in the study. All participants who met the inclusion criteria, namely stroke patients between 15-49 years attending the out-patient clinics at the Kenyatta National Hospital (KNH), Coast Provincial General Hospital (CPGH) and Moi Teaching and Referral Hospital (MTRH) were conveniently recruited and included in the study. As the type of stroke was not documented patients with all types of stroke were included in the study. A younger stroke population was included in the study as the mean age of stroke (< 60 years) found in sub-Saharan African countries is known to be much lower than what is documented elsewhere in the world¹⁷. Patients were only included if they were identified by perusing their files/folders at the time they were attending the outpatient clinics. A total of 161 patients were recruited between the months of December 2007 and May 2008.

Instrumentation

The Short-Form 36 (SF-36v2) questionnaire was used to determine quality of life. The Short-Form 36-item (SF-36v2) is a generic health questionnaire which has been validated as a sound tool for the assessment of health status of adult patients in clinical trials¹⁸. It is composed of thirty five (35) items that are grouped into eight (8) multi-item health domains of quality of life^{19, 20}. These 8 domains are: Physical functioning (PF) – limitations in physical activities because of health problems, Role physical (RP) – limitations in the usual role activities because of health problems, Bodily pain (BP), General health (GH), Vitality (VT) – energy and fatigue, Social functioning (SF) – limitations in social activities because of physical and emotional problems, Role emotional (RE) – limitations in usual role because of emotional problems and Mental health (MH).

Subscales scores range from 0 to 100, with higher values representing better function/health status. All scores were entered into an electronic database which automatically scored each domain and produced summary component scores which are expressed as a percentage. This method is more accurate as it automatically corrects items missed or ambiguously marked ²¹.

Data analysis

The statistical package for social sciences (SPSS) version 15.0 software and Microsoft Excel was used for capturing the data. Data was analyzed by: computing means and standard deviations for each quality of life (QOL) domain tested and the two summary component scores. The Mann-Whitney U, test and the Kruskal-Wallis test were used to compute associations between socio-demographic variables and the QOL domain scores.

Ethical Considerations

Ethical approval was granted from the Kenyan Research Ethics Committee and the Senate Research Grants and Study Leave Committee at the University of the Western Cape. The participants were informed of their right to withdraw from the study at any time. They were also ensured of confidentiality and anonymity. Participation in the study was obtained through written informed consent and was voluntary.

Results

Socio-demographic characteristics of the population

The study sample consisted of a total of 161 participants. The majority (68.9%) of the patients were in the age category of 40-49 years. The majority (55.9%) of the participants were female, while only 13% had a tertiary level education and a total of 54% were unemployed. A total of 72% of the population were in the chronic stages of stroke. The current socio-demographic characteristics of the participants are presented in table 1.

Mean Quality of life scores

The mean scores of the participants for each of the quality of life domains are presented in figure 1. The figure illustrates the average score according to the eight domains of the SF-36v2, expressed as a percentage out of a total of 100. The mean quality of life scores for each domain ranged between 29% and 48% as shown in Figure 1. The participants scored the highest percentage in the vitality domain (47.5%) and the lowest percentage in the physical functioning domain (29.9%).

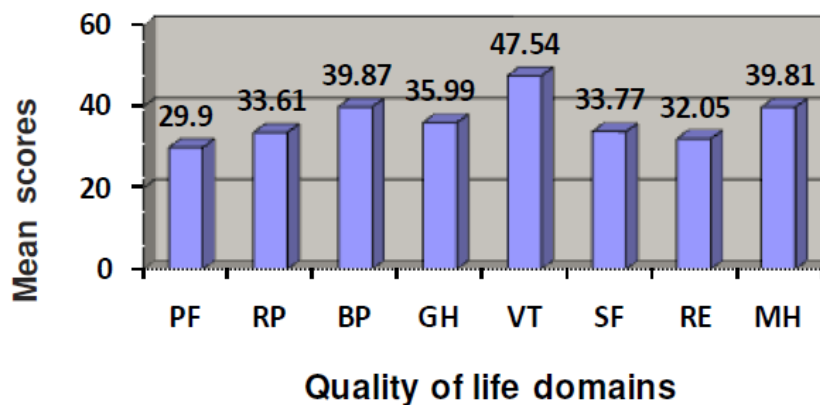


Figure 1: SF-36v2 Quality of life domain scores (n=161)

Associations between the quality of life domain scores and demographic characteristics of the participants Tests of association between the socio-demographic variables and the QOL domain score were carried out and revealed the results shown in table 1.

The results showed that the males scored higher than females in all the domains except in physical functioning and that the scores declined with advancement of age in all the QOL domains except in vitality, social functioning and mental health. In relation to occupation the participants had the highest scores for five of the 8 domains. The domains included were: physical functioning, which assesses limitations in physical activities such as walking and climbing stairs; role physical and role emotional which measure problems with work or other daily activities as a result of physical health or emotional problems; bodily pain which assesses limitations resulting from pain; vitality which measures energy and tiredness; social functioning which examines the effect of physical and emotional health on normal social activities; mental health which assesses happiness, nervousness and depression, and general health which evaluates the personal opinion of one's health compared with that of one's peers as well as the expectation of changes in health. Likewise those who had college and university education reported better scores than those with a lower level of education.

Those who had a stroke for 11 + months had the highest score in the vitality domain when compared with the other domains. They also had the highest score in the vitality domain when compared with participants who had a stroke for less than 11 months. The results also revealed that age was significantly associated with physical functioning ($p=0.000$), bodily pain ($p=0.044$) and general health ($p=0.004$). This meant that the scores for the above mentioned domains were lower in the older participants. Occupation (work) was significantly associated with physical functioning ($p=0.045$), bodily pain ($p=0.000$), general health ($p=0.004$), and social functioning ($p=0.037$). This meant that the participants who were employed had higher quality of life scores in the afore-mentioned domains when compared with those who were unemployed. The level of education was only significantly associated with general health ($p=0.003$). Participants with a higher level of education enjoyed a higher general health than those with lower educational levels. Other variables that were significantly associated are marital status with physical functioning ($p=0.029$), bodily pain ($p=0.030$), and duration of stroke with physical functioning ($p=0.000$), bodily pain ($p=0.011$), vitality ($p=0.040$) and mental health ($p=0.026$).

Table 1: Mean SF-36v2 % Scores for sample grouped according to current demographic characteristics (n=161)

	N (%)	PF	RP	BP	GH	VT	SF	RE	MH
Entire population	161(100)	29.9	33.6	39.9	36.0	47.5	33.8	32.1	39.8
Gender									
Male	71(44.1)	27.6	34.8	41.4	35.3	45.8	35.0	32.6	38.7
Female	90(55.9)	28.7	32.4	37.6	34.6	45.8	35.0	32.6	38.7
U		.751	.446	.254	.809	.533	.965	.947	.505
Age category									
15-19	5(3.1)	42.3	44.6	46.1	37.7	39.6	29.6	44.2	38.7
20-29	12(7.5)	36.0	33.6	41.4	37.7	44.3	35.0	32.6	41.6
30-39	33(20.5)	31.8	34.8	41.8	37.7	45.8	35.0	32.6	41.6
40-49	111(68.9)	25.5	34.8	37.2	32.9	49.0	35.0	32.6	38.7
F		.000*	.518	.044*	.004*	.229	.801	.429	.169
Occupation									
Student	8(5.0)	39.2	41.0	51.1	41.3	42.7	32.3	32.6	47.2
Employed	18(11.2)	31.8	36.1	43.8	40.1	50.6	37.8	34.5	41.6
Self-employed	48(29.8)	27.6	34.8	41.4	32.9	49.0	35.0	32.6	38.7
Unemployed	87(54.0)	27.6	32.4	37.2	33.9	45.8	29.6	32.6	38.7
F		.045*	.213	.000*	.004*	.078	.037*	.445	.122
Education level									
Primary	61(37.9)	27.6	34.8	41.4	32.9	49.0	35.0	28.7	38.7
Secondary	61(37.9)	27.6	34.8	37.6	32.9	45.8	35.0	32.6	38.7
College	15(9.3)	31.8	34.8	41.4	41.0	45.8	35.0	32.6	44.4
University	6(3.7)	28.7	30.0	41.7	41.3	52.1	35.0	32.6	45.8
Uneducated	18(11.2)	23.4	31.2	33.0	32.9	45.8	29.6	34.5	41.6
F		.348	.719	.105	.003*	.259	.214	.427	.081
Marital status									
Single	36(22.4)	30.8	32.4	41.8	35.0	47.4	35.0	32.6	38.7
Married	94(58.4)	27.6	34.8	37.4	35.3	49.0	35.0	32.6	38.7
Divorced	6(3.7)	25.5	33.6	41.9	31.7	49.0	35.0	38.4	40.2
Widowed	16(9.9)	21.3	26.3	32.8	32.9	42.7	29.6	34.5	41.6
Separated	9(5.6)	23.4	34.8	41.4	30.5	45.8	35.0	24.8	33.1
F		.029*	.356	.030*	.248	.432	.699	.175	.740
Time since stroke onset (months)									
2-4 months	19(11.8)	31.8	27.5	33.0	35.3	42.7	29.6	32.6	41.6
5-7 months	10(6.2)	28.7	23.8	37.2	37.7	44.3	32.3	24.8	38.7
8-10 months	16(9.9)	31.8	38.5	46.1	35.3	45.8	35.0	30.7	41.6
11+ months	116(72)	27.6	34.8	39.5	32.9	49.0	35.0	32.6	38.7
F		.287	.000*	.011*	.511	.040*	.197	.116	.026*

PF= physical functioning, RP= role physical, BP= bodily pain, GH= general health, VT= vitality, SF=social functioning, RE=role emotion, MH=mental health

Discussion

Sample

The mean age of stroke increases with age²², with the mean age being > 65 years. Studies that have investigated a younger stroke population have included patients who are between 45-55 years of age^{13, 23}. Although the majority of the participants in the current study were in the age group 45-49 years they will still be considered as young stroke patients who have specific needs related to quality of life¹³. Although the study only included a group

of stroke patients who are in a specific age group, the group was heterogeneous as it could include patients with different types of stroke who were at different stages since stroke onset.

Quality of life

The SF-36 domain scores found in the current study population was lower than was previously recorded in stroke populations^{13, 24}. One of these studies was a study conducted by Naess et al (2003) in Norway which included a Norwegian population of stroke patients of the same age group. The differences in the results between the Norwegian sample and the Kenyan sample could be linked to the differences in the socio-economic statuses of the two groups. A total of 58% of Norwegian study population were employed while only 18% of the participants in the current study were employed. In addition Norway is also a more developed country with more resources in relation to services for people with disabilities. It is important to note that an individuals' expression of their own health status which is comparative to quality of life are functions of socio- economic statuses and health services²⁵. In addition cultural differences between the two groups could also have played a role in the results. People from different cultures could afford more priority to factors such as occupation, and finances²⁶. As was reported in others studies^{13, 27}, a number of socio- economic factors were significantly associated with different domains of quality of life.

The participants in the present study reported the most limitations in the physical functioning domain with a percentage score of 29.9%, with the least affected domain being vitality (47.5%). The low scores in physical functioning domain indicated that the participants in the current study experienced limitations in performing activities such as vigorous activities, climbing stairs, walking various distances or engaging in activities which require bending, stooping or lifting and carrying objects. Limitations in the above mentioned activities are common in patients with stroke¹⁰ and have been found to be associated with lower quality of life⁶.

Low scores in the mental and psychological domains could be as a result of the stroke itself. Psychological symptoms such as depression and anxiety have been highlighted as post stroke complications²⁸. In addition depression could also result from the inability of the participants to fulfill the roles they previously held²⁹. Being young adults, their position and roles they play in the society give them many responsibilities: for men, the economic responsibility as heads of their families and as mothers, home keepers. These demands have subjected them to frustration²³. In addition expectation for health in younger stroke patients is higher than the older patients hence making them less able to cope psychologically with the stroke outcome³⁰. Another psychological factor that could have contributed to the low scores could be linked to depression. Post stroke depression has been reported as common in young adults and is associated with severe disability, bad

general outcome and absence of return to work³¹. The fact that vitality was the highest scored domain in the current study sample could be that although the participants experienced limitations in physical and psychological domains this had not experienced excessive feelings of fatigue stroke³¹. The domain of physical functioning that was the lowest scored domain in the current study was significantly associated with age, work, and marital status and date since stroke onset.

Limitations of the study

As the study sample only included young stroke patients the results cannot be generalized to all stroke patients in Kenya. The study did not include a sample of the general population in Kenya in order to compare the results. Future studies should include data relating to the severity of stroke and disability as these factors could affect the quality of life of the individuals.

Conclusion

The quality of life scores for this group were low compared to other studies conducted Africa and Europe. This means that they were experiencing more challenges with physical functioning, psychological and emotional functioning and fulfilling previous roles. The results of the study also demonstrated that the socio-demographic variables: age, occupation, levels of education, marital status and the duration of stroke were significantly associated with various quality of life domains.

Recommendation

Rehabilitation interventions provided to younger stroke patients should be comprehensive and include addressing all the areas in which the patients are challenged.

References

1. Jacobs B, Boden-albala B, Lin I-F, Sacco R. Stroke in the young in the Northern Manhattan. *Stroke*. 2002; 33: 2789-2793.
2. Kengne A, Anderson G. Neglected burden of stroke of Sub- Saharan Africa. *International Journal of Stroke*. 2006; 1: 180-190.
3. Feigin V, Lawes C, Bennett D, Anderson C. Stroke epidemiology: a review of population based studies of incidence, prevalence and case fatality in the late 20th century. *Lancet Neurology*. 2003; 2: 43-53.
4. Teasall W, MCrae M, Finestone H. Social issues in the rehabilitation of younger stroke patients. *Archives of Physical Medicine and Rehabilitation*. 2000; 8: 205-209.
5. Hackett M, Duncan J, Anderson C, Broad J, Bonita R. Health Related Quality of Life Among Long-Term Survivors of Stroke. Results from the Auckland Stroke Study, 1991 - 1992. *Stroke*. 2000; 31: 440 - 447.
6. King B. Quality of life after stroke. *Stroke*. 1996; 27: 1467-1472.
7. Hopman W, Verner J. Quality of Life during and after inpatient stroke Rehabilitation. *Stroke*. 2003; 34: 801-.805
8. Walker R, Mclarty D, Masuki G, Kitange H, Whiting D, Moshi A, Massawe J, Amaro R, Mhina A, Alberti K. Age Specific Prevalence of impairment and disability relating to hemiplegic stroke in the Hai District of Northern Tanzania. *Journal of Neurology Neurosurgery and Psychiatry*; 2000; 68: 744-749.
9. SASPI Project Team. Prevalence of Stroke Survivors in Rural South Africa: Results from the Southern African Stroke Prevention Initiative (SASPI) Agincourt Field Site. *Stroke*, 2004; 36: 627-632.
10. Hartman-Maeir A, Soroker N, Ring H, Avni N, Katz N. Activities, participants and satisfaction one-year post stroke. *Disability and Rehabilitation*. 2007; 29:559 - 566.
11. Rouillard S. *Pattern of recovery and Outcome after Stroke in Patients Accessing a Western Cape Rehabilitation facility*. Cape Town, Cape Town 2006.
12. Desrosiers J, Rochette A, Noreau L, Boubonnais D, Bravo G, Bourget A. Long-term changes in participation after stroke. *Topics in Stroke Rehabilitation*, 2006; 13: 86-97.
13. Naess H, Nyland H, Thomassen L, Aarseth J, Myhr K. Long-term outcome of cerebral infarction in young adults. *Acta Neurologica scandinavica*. 2004;110: 107-112.
14. Ghandehari K, Izadi-mood Z. Etiology of young adult onset Brain infarction in Iran. *Archives of Iranian Medicine*. 2006; 9:240-243.
15. Hughes J, Jelsma J, Maclean E, Darder M, Tinise X. The health-related quality of life of people living with HIV/AIDS. *Disability and Rehabilitation*. 2004; 26: 371-376.
16. Jelsma J, Ferguson G. The determinants of self- reported health-related quality of life in a culturally and socially diverse South African community. *Bulletin of the World Health organization*. 2004, 82:206-212

17. Kenge A, Anderson G. The neglected burden of stroke in Sub-Saharan Africa. *International Journal of Stroke*, 2006, 1:180 - 190.
18. Kosinski M, Keller S, Hatoum H, Kong S, Ware J. SF-36 Health Survey as a generic outcome measure in clinical trials of patients with osteoarthritis & rheumatoid arthritis: tests of data quality, scaling assumptions and score reliability. *Medical Care*. 1999; 37:ms10-22.
19. Hobart J, Williams L, Moran K, Thomson. Quality of life measurement after stroke: uses and abuses of SF-36. *Stroke*. 2002; 33:1348- 1356.
20. Jönsson A, Lindgred I, Hallstrom, B, Norrving B, Lindgred A. Determinants of quality of life in stroke survivors and their informal caregivers. *Stroke*. 2005; 36: 803-808
21. Ryan J, Corry J, Attewell R, Smithson M. A comparison of an electronic version of the SF- 36 general health outcome questionnaire to the standard paper version. *Quality of life research*. 2002; 11: 19-26.
22. Feigin V, Lawes C, Bennett D, Anderson, C. Stroke epidemiology: a review of population based studies of incidence, prevalence and case fatality in the late 20th century. *Lancet Neurology*, 2003; 2: 43-53.
23. Roding J, Lindstrom B, Malm J, Ohman A. Frustrated and invisible-younger stroke patients experiences of the rehabilitation process. *Disability and Rehabilitation*. 2003; 25: 867-874.
24. Carod-Artal J, Egido J, González J, Seijas V. Quality of Life among stroke survivors evaluated 1 year after stroke. Experience of a Stroke Unit. *Stroke*, 31:2995-3000.
25. Carlsson E, Moller A, Blomstrand C. Consequences of mild stroke in persons less than 75 years of age: one year follow-up. *Cerebrovascular disease* 2003; 16:383-388.
26. Omu O, Reynolds F. Quality of life in stroke survivors living in Kuwait: health professionals' perspectives. *Diversity in Quality of Life Health and Care*, 2012; 9(1): 9-18.
27. Murray C, Harrison B. (2004). The meaning and experience of being a stroke survivor: an interpretative phenomenological analysis. *Journal of Disability and Rehabilitation*, 26(13): 808-816.
28. Langhorne P, Scott D, Robertson L, MacDonald J, Jones L, McAlpine C, Dick F, Taylor G, Murray G. Medical Complications After Stroke: A Multicenter Study. *Stroke*. 2000; 31:1223-1229.
29. Dowswell G, Lawler J, Dowswell T, Young J, Forster A, Heam, J.. Investigating recovery from stroke: a qualitative study. *Journal of clinical nursing*, 2000; 9(4): 507-515.
30. Patel M, McKeivitt C, Lawrence E, Rudd A, Wolfe C. Clinical determinants of long-term quality of life after stroke. *Age & Ageing*. 2007; 36:316-322.

31. Neau P, Ingrand P, Mouille-Brachet C, Rosier M-P, Counderg C, Alvarez A, Gil R. Functional recovery and social outcome after cerebral infarction in young adults. *Cerebrovascular Disease*. 1998; 8: 296-302.